LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application.

1-32. (canceled)

33-59. (canceled)

60. (previously presented) An interspinal prosthesis for implantation between a first spinous process and a second spinal process, the prosthesis comprising:

a first half comprising a coupling portion and a process portion, the coupling portion having a bore and configured for insertion into the interspinal space between the first spinous process and the second spinal process, the process portion being sized and configured to be placed on one side of the first and second spinous processes and being sized and configured to prevent its advancement into the interspinal space;

a second half comprising a coupling portion and a process portion, the coupling portion configured to be received within the bore of the coupling portion of the first half, the process portion being sized and configured to be placed on the other side of the first and second spinous processes and being sized and configured to prevent advancement into the interspinal space;

a locking mechanism for axially locking the first and second halves together after at least the coupling portion of the first half has been inserted into the interspinal space;

wherein the coupling portion of the first and second halves are sized and configured to be elastically deformable such that the coupling portion in the area between the first and second spinous processes has an unstressed diameter and a deformed diameter, said deformed diameter being between about 10% to about 50% of the unstressed diameter.

61. (previously presented) The interspinal prosthesis of claim 60, the first and second halves comprising an assembled condition and an unassembled condition, the coupling portions of the first and second halves insertable into the interspinal space in the unassembled condition, wherein engaging the coupling portion of the first half with the coupling portion of the second half configures the halves in the assembled condition.

62. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking mechanism comprises inner threads on the bore of the first half configured to mate with outer threads on the coupling portion of the second half such that the first and second halves can be screwed together.

63. (withdrawn) The interspinal prosthesis of claim 62, the locking mechanism further comprising corresponding engageable ratchet teeth formed on the first and second halves to prevent unthreading of the first and second halves once the halves have been screwed together.

64. (previously presented) The interspinal prosthesis of claim 60, wherein the coupling portions of the first and second halves comprise complementary key and keyway surfaces configured to prevent rotation of the two portions with respect to each other.

65. (withdrawn) The interspinal prosthesis of claim 64, wherein the locking mechanism comprises a nut and bolt combination, the shank of the bolt receivable in complementary bores in the coupling portions of the first and second halves.

66. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking mechanism comprises a shoulder in the first half configured to receive a compressible prong on the second half.

67. (withdrawn) The interspinal prosthesis of claim 66, wherein the locking mechanism further comprises a pin configured to be received within a bore of the compressible prong to render the prong substantially incompressible.

68. (withdrawn) The interspinal prosthesis of claim 60, wherein the locking member comprises at least one wire configured to pass through a bore in the recess and projection.

69. (previously presented) The interspinal prosthesis of claim 60, wherein at least a portion of at least one of the first and second halves is made of an elastomeric material.

70. (previously presented) The interspinal prosthesis of claim 60, wherein at least a portion of at least one of the first and second halves is made of a metallic material.

71. (previously presented) The interspinal prosthesis of claim 60, wherein at least a portion of at least one of the first and second halves further comprises a surface for enhancing bone ingrowth.

72. (previously presented) The interspinal prosthesis of claim 71, wherein the surface has a roughened profile.

73. (previously presented) The interspinal prosthesis of claim 71, wherein the surface comprises a hydroxyapatite coating.

74. (previously presented) The prosthesis of claim 60, the coupling portions configured to substantially prevent compression of the interspinal space when the coupling portions are inserted in the interspinal space.

75. (previously presented) The prosthesis of claim 74, the process portions configured to retain the coupling portions within the interspinal space when the coupling portions are in the locked configuration.

76. (previously presented) The prosthesis of claim 60, wherein the first half comprises at least one radially-projecting tab and the second half comprises a groove, at least a portion of the tab receivable within the groove when the coupling portions are engaged to prevent relative rotational movement of the first and second halves.

77. (previously presented) The prosthesis of claim 60, wherein the coupling portion of the first half comprises a stop surface configured to axially engage the second half.

78. (previously presented) The prosthesis of claim 77, wherein stop surface is configured to separate the process portions of the first and second halves by an amount in the range of from about 2 mm to about 15 mm.

79. (previously presented) The prosthesis of claim 60, wherein the coupling portion of the first half comprises a cross-sectional dimension of from about 50 mm.sup.2 to about 300 mm.sup.2.

80. (previously presented) The prosthesis of claim 79, wherein the process portions of the first and second halves each have a cross sectional dimension of from about 70 mm.sup.2 to about 500 mm.sup.2.

81.-91 (canceled)